

PSG 121, *Phenacephorus spinulosus* (Hausleithner).

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Key words

Phasmida, Rearing, *Phenacephorus spinulosus*, Mt. Kinabalu, Sabah, Borneo.

Classification

Berghard Hausleithner described this species in 1991 as *Phasgania spinulosa*, base on a single male specimen which had been collected by C.L. Chan & L. Chin in 1981. Females of this species were not available to Hausleithner and males of several genera of Lonchodini are very similar. The species takes its name from the spines along the abdomen of the male.

The female has lobes on the mid femora (Fig 2a) and a simple crest on the head (Fig 2b). This species therefore belongs in the genus *Phenacephorus* which was described by Brunner von Wattenwyl in 1907. As it has only recently been described, this species has been mentioned only a few times in the literature.

Phasgania spinulosa Hausleithner, 1991: 230, fig 9. (Holotype: Sinsuran, Sabah).

Phenacephorus spinulosus (Hausleithner), Bragg, 1991: 3.

Phenacephorus spinulosus (Hausleithner), Bragg, 1992: 185-192.

Distribution

This species is only recorded from two localities, both in Sabah: Sinsuran and Mt. Kinabalu Park. It is common along the trails near Mt. Kinabalu Park Head Quarters. On three nights in 1992, Paul Inglis and I counted one, three and nine adults.

There are a few specimens in the Natural History Museum, London, these were collected by Allan Harman in the early 1980s, also from Mt. Kinabalu.

Culture history

Two females and four males of this species were collected at night in the area around Mt. Kinabalu Park Head Quarters in July 1990. The insects survived for about two weeks in captivity and 30 eggs were collected. These eggs were incubated and three specimens, one female and two males, were raised in the U.K. The PSG culture (PSG 121) is based on these, and another adult pair which I collected in August 1992, again from Mt. Kinabalu. Eggs and nymphs have been distributed to several PSG members.

Some specimens were also collected by Ulrich Ziegler from the same area, but his culture died out.

The male (Fig 1b).

The male varies in length from 49.5-51mm. The body, head and legs are mid brown and densely granulose. The colour of the abdomen gradually changes to dark brown towards the rear.

The head bears two quite large spines which point forwards and outwards. The antennae are mid brown in colour.

The mesonotum, and abdominal segments 1-7 all have a swelling on the upper surface of the hind edge. This has the form of a blunt spine on the first six abdominal segments although on the median segment this may not always be particularly spine-like. The swelling on the 7th segment is very small, little more than a tubercle. The 8th segment widens greatly at the hind end and the 9th narrows at the rear, together with the short 10th segment, they form a distinctive kite-shaped

swelling on the end of the abdomen.

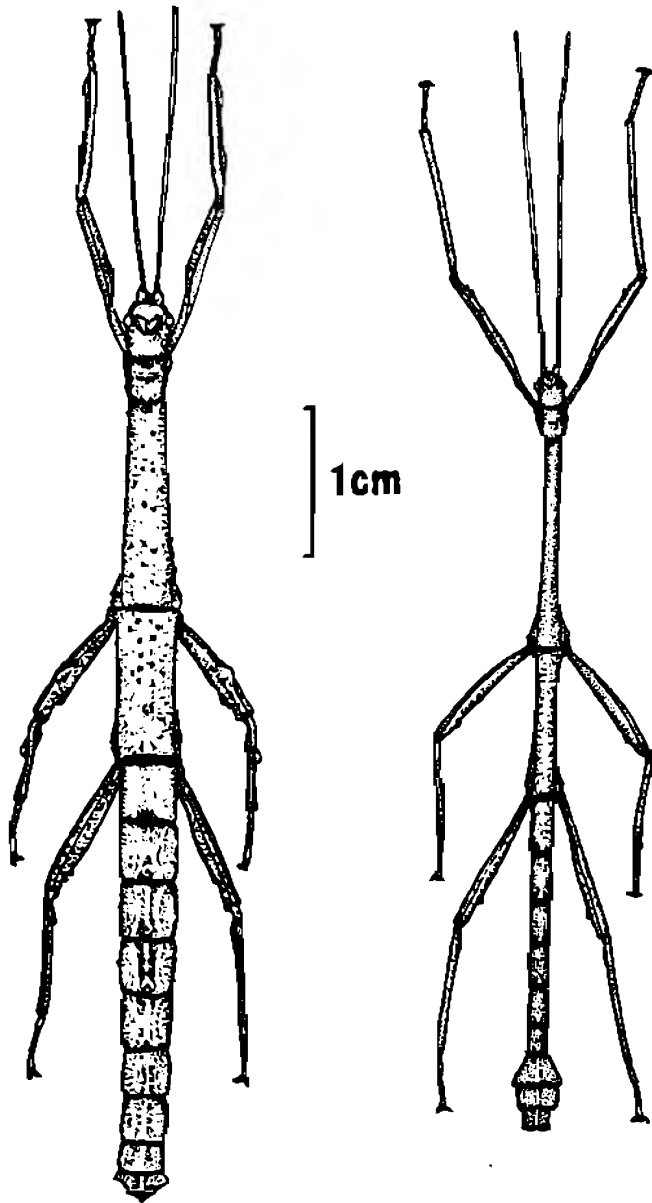


Figure 1. Female & male *P. spinulosus*.

The legs are plain except for a few small spines on the underside of the apices of the femora. In each case the spine or pair of spines nearest the body are quite robust, those nearest the apices are small.

The female (Figs 1a, 2a and 2b).

The female varies in length from 56-60.5mm. The body is mid brown and densely covered in fine granules. There are some black tubercles on the thorax and black ridges running along the abdomen. Abdominal segments 5 and 6 may be very dark brown. The legs are mid brown with black speckles.

The head is more or less flat, and between the eyes are two simple crests lying at an angle of about 45° to the midline (Fig 2b). The antennae are as long as the front legs, light to mid brown sometimes with darker patches.

Abdominal segments 2-9 all have a small swelling at the hind edge, these correspond to the blunt spines of the male (although in the male they occur only as far as the 7th segment). The 5th segment has quite a large swelling on the upper surface, the size and shape of this varies.

The fore femora are narrow at the base, widening out to become quite robust. As with the male, there are a few small spines on the underside of the apices of all the femora.

The mid femora are short, strong, and have a rounded lobe on the upper surface (Fig 2a). The middle tibiae have two lobes about one third of the way along, the one on the outside is a large rounded lobe while the one on the inside is more low lying.

Variation

The males show no significant variation and there appears to be little variation in the females of this species. The only notable variation in the females is a slight difference in the size and shape of the swelling on the 5th abdominal segment.

This lack of variation is a sharp contrast to the other *Phenacephorus* species which is in culture

(PSG 73, *P. cornucervi*), which has highly polymorphic females. The nymphs in my culture are a very pale cream colour, almost white and they seem to begin to darken when they are about half grown.

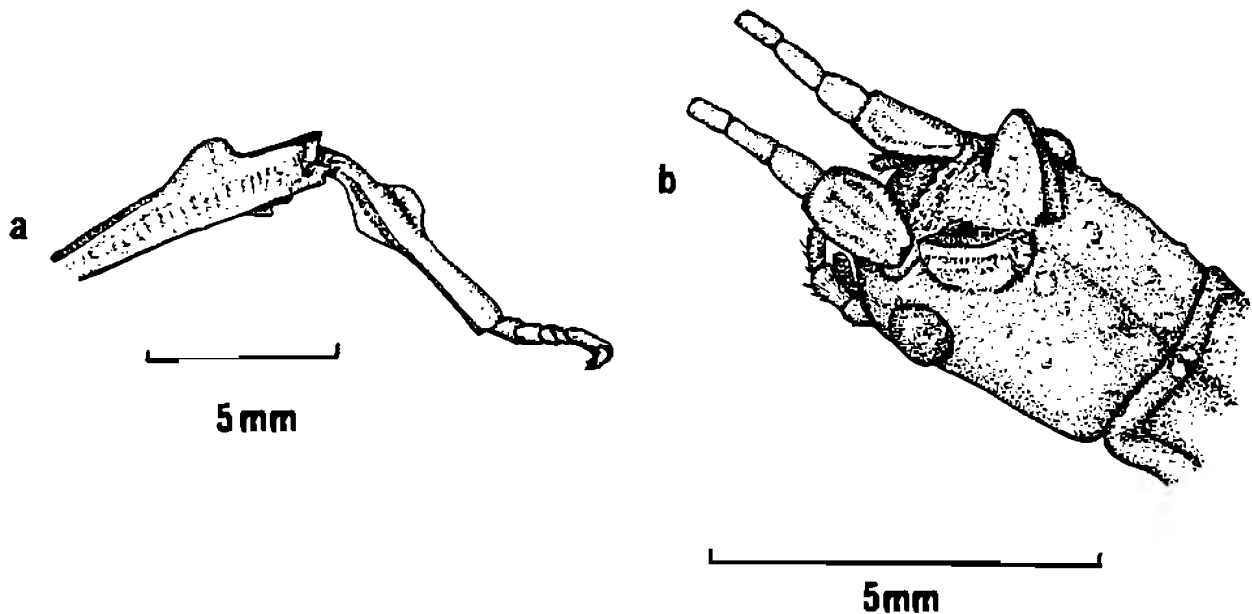


Figure 2. (a) mid femur and (b) head of the female.

The egg (fig 3).

The egg is small, typically 2.3mm long, 1.7mm in height and 1.5mm in width. The capsule is uniformly dark grey, almost black. The surface appears pitted with tiny holes. The micropylar plate has a black rim and is almost oval, but slightly wider at the polar end. The operculum is very slightly concave and has a dark brown capitulum. The opercular angle is very small, only about $+1^\circ$.

Hatching takes four to five months in unheated conditions (about 10-15°C) but would probably take only three to four months if incubated at higher temperatures. Care is needed to ensure that the eggs do not become too dry.

Foodplants

This species will readily feed on bramble (*Rubus* spp.), raspberry (*Rubus idaeus*), firethorn (*Pyracantha* sp.) dog rose (*Rosa canina*), ivy (*Hedera helix*), eucalyptus (*Eucalyptus gunnii*), oak (*Quercus* sp.) and flowering currant (*Ribes* sp.). I have not tried other plants but would expect quite a range to be eaten.

Rearing

I have successfully reared several generations of *P. spinulosus* in my standard cages (Bragg 1987 & 1989). However a high humidity seems to be essential (70-90%).

The thirty eggs of *P. spinulosus* which were collected in Sabah were incubated at ambient temperatures. From these eggs three adults were raised, two male and one female. The males became adult some time before the female. The female produced only 87 eggs, and died before

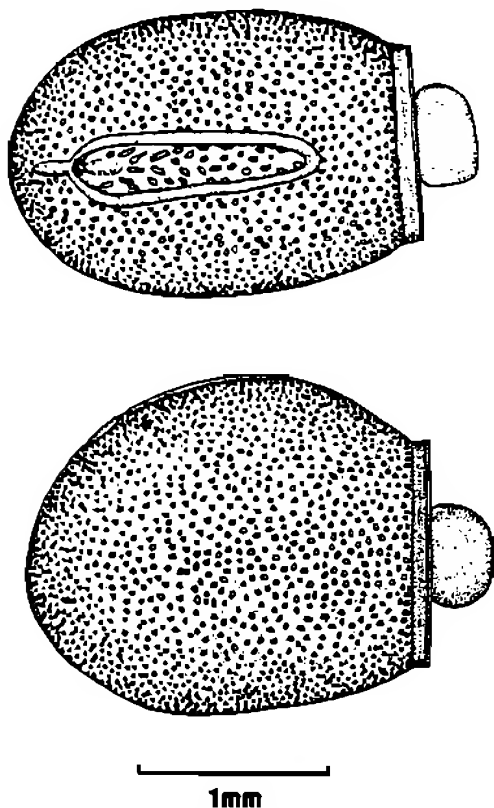


Figure 3. Dorsal & lateral views of the egg.

the males, so I assumed that she did not live for a normal lifespan and would normally have produced more eggs, this theory later proved correct. Some of these eggs were distributed to other members of the PSG and a few were kept and distributed as nymphs.

The rather poor success rate from the initial 30 eggs was probably due to the eggs being badly treated in the four weeks immediately after they were laid. During this time I was travelling around Borneo and the eggs were subjected to varying temperatures and a lot of bumping around! Subsequent experiences have produced much higher success rates.

The female which I collected in 1992 laid its first eggs on 30th August 1992 and the first hatching was on 20th January 1993 (141 days). The eggs, as usual, were kept in the cage without any additional heating. The female continued to lay eggs until she died in 19th April 1993. Although I did not keep a record of the total number of eggs laid (because she had already been laying before capture), I estimate that about 250 eggs were laid. This is based on the egg laying rate of one egg per day (88 eggs in 89 days from 17-11-1992 to 13-02-1993), however as this rate is from the coldest period it is probable that the number of

eggs laid was much higher; in addition she would have been laying eggs before she was caught.

Other members have reported difficulty with this species which I believe is due to keeping them too dry. The eggs are very small and particularly prone to drying out, leaving them in an open container in a room for a few days appears to be fatal.

They are an attractive species and as they are quite small, they do not need much feeding. In my usual conditions of very humid cages I have found the hatch rate can be very high and survival of the nymphs is good. I gave away all my eggs but recently noticed some nymphs which I assume are due to a few eggs which must have lodged in the corner of the cage!

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